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MEDICINE.

(504) The Presystolic Bruit.

PROFESSOR I. CANTALAMESSA, of Bologna (*Riforma Medica*, May 5th, 1891) says the presystolic *bruit*, which a Bolognese professor (Brugnoli) was one of the earliest to study (1859), is still by some regarded as pathognomonic of mitral stenosis. Flint, however, reported three cases of aortic insufficiency, in each of which a presystolic *bruit* was distinctly heard as well as the diastolic, but in which the mitral valves were found intact after death. His explanation was that the chordæ tendineæ of the mitral valve vibrated owing to increased tension during the auricular contraction, because the ventricle received blood both from the aorta and from the auricle. Keit thought that the murmur was of aortic origin, due to the great difference of tension between the loaded ventricle and the empty aorta at the moment of beginning of systole. But if so, Cantalamessa maintains, the *bruit* should be heard over the base of the heart, not the apex. De Renzi gave as the cause the meeting of the two currents of blood, one (abnormal) from the aorta, the other (normal) from the auricle. But this and Flint's hypothesis are, in Cantalamessa's opinion, open to the grave objection that if either were true a presystolic *bruit* ought to be very common in aortic insufficiency, which it is not. Nor is it heard in cases of great insufficiency, but only in rare cases, and then strictly localised over the apex. This suggested to Grocco the following theory: The regurgitation varying in amount and direction according to the degree and seat of the aortic lesion, if only one semilunar valve fail to act, the current backward will be oblique, and if directed posteriorly will cause the anterior bicuspid valve to become tense, and vibrate against the stream coming from the auricle, the brief auricular systole aiding. Further, if the backward current does not strike against the valvular cusp, it will still impinge against the ventricular wall, and in certain cases be reflected against the auricular current. After reference to the views of Dickinson, Constantin Paul, and Fenwick and Overend, Cantalamessa proceeds to examine why the first sound is strong in mitral stenosis, and weak or even absent in aortic regurgitation. The first sound is normally caused by (1) the heart muscle, (2) the atrio-ventricular valves, (3) the arterial distension. Which of these three will explain by its alteration the phenomena just mentioned? Certainly not the first, for in mitral stenosis the left ventricle is not hypertrophied; nor the last factor, namely, arterial distension, because in the same disease the pulse is small. There remains valvular tension as the cause. The more suddenly the valves pass from extreme relaxation to great tension, the more readily will a sound be produced. Now in aortic insufficiency the refluent strain tends to make tense the valves gradually, so that in this final closure there is no abrupt change, and hence the first sound is weak or absent; but in mitral stenosis, owing to the negative pressure in the left ventricle, the valves are at one time extremely relaxed and then suddenly stretched, which causes a short and sharp first sound. As regards the presystolic *bruit*, Cantalamessa concludes that: (1) The *bruit* heard immediately before the first sound in mitral stenosis, in double mitral disease, and (occasionally) in aortic insufficiency, is really a presystolic *bruit*; (2) it is not pathognomonic of mitral stenosis; (3) its presence warrants the diagnosis of mitral stenosis only when a careful examination of other physical signs allows the exclusion of aortic insufficiency.

(505) Passage of the Bacillus of Tuberculosis from the Mother to the Fœtus.

BIRCH-HIRSCHFELD and SCHMORL (*Beiträge zur Path. anat. und zur allg. Path.*, 1891, p. 429) have put on record a case which they claim is the first in which it has been definitively proved that in the human subject tubercle bacilli pass from the mother to the fœtus. The patient was a young woman who, shortly after the commencement of her first pregnancy, began to show signs of phthisis; these gradually became more marked, and she succumbed at the seventh month of her pregnancy. Immediately after the death of the mother the fœtus was removed by Cæsarean section. The necropsy on the mother showed abundant evidence of phthisis; not only in the lungs, but in other organs, tuberculosis was detected. Although the fœtus had been alive shortly before the death of the mother, it was dead when it was removed. The chest was at once opened, but there was nothing noteworthy about the lungs. The fœtus was then taken to the laboratory, the surface of the abdomen was washed with perchloride of mercury, and the cavity was opened with sterilised knives. No tubercles could be seen on any of the organs. Minute pieces of the liver, the spleen, and the kidney were placed in the abdominal cavity of two guinea-pigs and a rabbit with all antiseptic precautions. One of the guinea-pigs died in fourteen days, and tubercles were found in different parts of the abdominal cavity. The second one was killed about six weeks after inoculation, as it was clearly ill, and many tubercles were found in the peritoneal

cavity. The rabbit lived three months; on its death many tubercles were found in the liver and the lung. Tubercle bacilli were found in the umbilical cord and the blood of the umbilical vein.

(305) Transmission of Tuberculosis to Animals

M. GUINARD (*Lyon Médical*, May 17th, 1891) refers to a habit which, according to him, prevails among the peasantry in certain parts of France, of giving cattle water to drink which has been used for the household washing. He mentions a case which came under his notice in which the cows of a farm in the department of the Loire drank water every day in which the handkerchiefs used by a girl in the last stage of phthisis, with very copious expectoration, had been washed. This suggested to M. Guinard the possibility of tuberculosis being transmitted from the human to the bovine subject in this way, and he proceeded to make experiments to test the point. Having soiled some linen with tuberculous material, he had it washed in water in the ordinary way. On February 7th, 1891, he inoculated one rabbit and eight guinea-pigs, in the connective tissue, with this water. On the 18th two of the latter died, but on *post-mortem* examination they presented no definite signs of tubercle, but only pericarditis and pleurisy, with false membranes, which M. Guinard considered to be due to the action of the microbe observed by MM. Rodet and Courmont in their experiments on tuberculosis. On February 22nd the rabbit died with a swelling in the thigh but no tubercle. On February 23rd and 24th two guinea-pigs died with numerous distinct tuberculous lesions. In March another guinea-pig died tuberculous. Up to the date of report, the remaining guinea-pigs continued to all appearance healthy. M. Guinard thinks the fact that in three cases the inoculation produced tuberculosis sufficient to prove that the disease may be transmitted in the way indicated, and that the practice of giving cattle water to drink which has been used to wash linen fouled with tuberculous sputum is one to be carefully avoided.

SURGERY.

(306) Resection of Lung in Incipient Tuberculosis.

M. TUFFIER recently delivered a lecture at the the Hôpital Beaujon in Paris on resection of the lung for the removal of tuberculous formations (*Semaine Médicale*, May 16th, 1891). He pointed out that so far surgical interference in cases of pulmonary tubercle had been limited to the opening and draining of large cavities; his own operation had had a different object, namely, the removal of commencing lesions through a small incision, which should heal by first intention. The patient is then to be submitted to appropriate medical treatment, "which alone can place him in a state of defence against a new invasion of the disease." Before attempting the removal of pulmonary tissue in the human subject, M. Tuffier made numerous experiments on animals which convinced him that a portion of lung tissue may be ligatured without serious accident, and that the wound heals quickly. The void left by the piece removed, if this is not too large, is soon filled up by the expansion of the rest of the organ. On November 13th, 1890, M. Tuffier performed the radical cure of a spontaneous hernia of the lung, and he availed himself of the opportunity of making a surgical exploration of the apex. The swelling projected in the second intercostal space, and the history of the patient, as well as the auscultatory phenomena, seemed to justify the suspicion of concomitant tuberculosis. An incision was made in the second intercostal space, the parietal pleura was carefully separated, and the apex of the lung examined with the finger. M. Tuffier was able to assure himself that the slightest induration or roughness could thus be detected in the living lung. In this case the apex was perfectly smooth and soft; the hernia was returned, the wound stitched up, and the patient was well on the seventh day. He has since shown no symptom of tuberculosis. Emboldened by this result, M. Tuffier, on May 5th, performed resection of the lung in the case of a man, aged 25, suffering from incipient phthisis, the lesion being apparently limited to the right apex. The patient having been anæsthetised with chloroform, an incision was made along the second intercostal space to within 2 centimetres of the sternum. The fibres of the pectoralis major and the external and internal intercostal muscles having been divided, the surface of the lung came into view. In order to facilitate the drawing out of the apex through the small incision, M. Tuffier produced what he calls an "extrapleural pneumothorax" by separating the parietal pleura from the chest wall around the apex, thus causing retraction of the corresponding part of the lung. In doing this, the membrane was slightly torn, and a little air gained admission to the pleural sac; M. Tuffier immediately applied his finger and then a piece of iodoform gauze to the perforation, and no harm ensued. The apex was then seized with special forceps, and drawn gently through the incision. The induration could be distinctly felt and its limits defined; it was firm in the centre, slightly granular at the circumference, and about the size of a large hazel nut. A silk ligature was next passed round the protruding portion of lung about 5 centimetres from the apex and 2 centimetres beyond the zone of infiltration; the ligature having been tightened, the piece of lung was severed, and the pedicle accurately sutured to the periosteum of the internal surface of the second rib, so as to avoid the danger of pneumothorax. The divided muscles were then carefully sutured with catgut, layer by layer; the skin wound was closed with Florence hair, and a dressing of iodoform wool applied. The operation, including the administration of chloroform, occupied thirty-five minutes, and there was at no time the slightest disturbance either of the breathing or the circulation. The patient made an excellent recovery without rise of temperature, cough, or any sign of reaction, local or general. On the sixth day, when the dressing was changed for the first time, auscultation showed that air entered the whole of the lung from the supraspinous fossa to the base without any abnormality of sound, or friction, or sign of pleural effusion. There was only slight weakness of the breath sounds all over the lung. The dressing was dispensed with on the ninth day, and on May 13th the patient was able to go out and ascend two flights of stairs to be exhibited to the members of the Surgical Society. The resected portion of lung was examined by Professor Cornil, who reported that it contained a tuberculous nodule of the size of a hazel nut without excavation; around it were disseminated tubercles. The presence of bacilli proves the nature of the morbid process. M. Tuffier says he is perfectly aware of the objections to which the

procedure is open, and of its limitations. He says the patient had a localised lesion, from which the operation has freed him; whether medical treatment will be able to safeguard him from further attacks only the future can show.

(508) Resection of the Pubes in Suprapubic Cystotomy for the Removal of Vesical Tumour.

At the French Congress of Surgery, M. Heydenreich, of Nancy, in a paper of which an abstract is given in the May number of the *Revue de Chirurgie*, stated that occasionally on removal of a tumour from the bladder by the suprapubic method, some difficulty is experienced in reaching the seat of disease in consequence of the obstacle formed by the upper portion of the pubic symphysis. In order to overcome this difficulty the surgeon might, it is held, without compromising the solidity of the pelvic girdle, resect this portion of bone by two incisions made one on each side, beginning either within or without the spine of the pubes and carried downwards and inwards. The author practised this method in a case in which the vesical growth, notwithstanding the use of Petersen's bag, was inaccessible. The upper portion of the symphysis having been resected the operation was completed without any further difficulty. It is held that resection of the pubes does not add to the severity of suprapubic cystotomy, but that, on the contrary, it facilitates the operation and shortens its duration, and, at the same time, enables the surgeon to get beyond the limits of the tumour. Resection of the pubes, however, is not indicated in every case of removal of vesical growth. It must be regarded as an exceptional procedure, but still one which the surgeon should not hesitate to employ whenever it seems to be necessary. In the discussion on this paper it was asserted by M. Pozzi that the position of the patient advocated by Trendelenburg affords free access to almost every part of the interior of the bladder, and so in almost every case would render resection of the pubes an unnecessary and useless proceeding.

(509) Improvised Sterile Dressings for Wounds.

Dr. H. C. Wyman, Professor of Surgery in the Michigan College of Medicine and Surgery, says (*Journal of the National Association of Railway Surgeons*, November, 1890) that there is no reasonable excuse for the employment of non-sterile dressings for wounds even in cases of emergency when iodoform gauze, sublimate dressings, borated cotton wool, etc., are not at hand. The best of all sterilisers—heat—can almost always be commanded when wounds are to be dressed, and all articles which are to come in contact with them can be rendered practically sterile. "A gas jet, lamp, stove, a coil of steam pipe, boiler, a fire can be found or made almost anywhere, and by means of any one of them all dressings can be quickly and efficiently sterilised." Professor Wyman has taken large pieces of a well-worn woollen shirt from a tramp brought to the hospital with railway injuries, heated them over the top of a lamp until perfectly dry, and proved them to be practically sterile by testing them in comparison with unheated pieces of the same shirt in jars of beef tea. Soiled sheets, cotton shirts, soiled towels, waste cotton, oakum, and many other articles he has treated in the same way with the same results, showing that but little ingenuity and patience are needed to render almost any article practically sterile. In the everyday treatment of wounds it his custom often to improvise his dressings. "The towels with which the wound is sponged are heated and sterilised in the kitchen oven. The gauze is made from an old sheet or shirt, clean and white, which almost any housewife can furnish. It is roasted to a light brown on top of a hot stove and applied hot to the wound. It is a splendid absorber of discharges." When oakum is not at hand to treat in the same way, he tears the washed sheet into narrow strips and pieces and puts a thick layer of it over the gauze. Then a layer of cotton batting roasted in the same way is applied over the strips of sheet and held in place by a roller bandage. When the cotton cannot be got he uses more of the sheet until the wound is thoroughly protected from the air. The slightest trace of fluid soaking through is a signal for a change of dressing, which is repeated after the original method. The wounds treated in this way have given most satisfactory results; the dressings are prepared while the patient is being made ready and anæsthetised.

(510) Modern Renal Surgery.

In No. 16 of the new series of the *Sammlung klinische Vorträge*, Dr. A. Obalinski, of Cracow, deals, in the first place, with the subject of rupture of the kidney as an indication for nephrectomy (Supplement, May 16th), and next reports cases of suppurative paranephritis, of calculous pyonephritis, and of ureteral fistula. The author sums up his views regarding the treatment of severe inflammatory affections of the kidneys and their sequelæ in the following conclusions: (1) Suppurative inflammation of the kidney and surrounding structures indicates the operation of nephrectomy in order that free exit may be given to the purulent and other inflammatory excretions, and that the focus of the disease may be thoroughly cleansed, and further extension of the suppuration to important parts, as, for example, the thoracic and abdominal cavities and the hip-joint, be thus prevented. In most cases the single lumbar incision, as was performed by Simon, will suffice, but when there has been extensive undermining of the peritoneum the formation of a large flap, as practised by Bardenheuer, is to be preferred, as such operation permits of ready access to all extensions of the main pus-containing cavity. (2) Ureteral fistula should always be treated by removal of the corresponding kidney, provided the surgeon can assure himself of the existence of a sound renal organ on the other side. Nephrectomy in such cases is indicated, not only on subjective grounds and when, for instance, the external flow of urine cannot be restrained by any apparatus and the patient is thus prevented from following his occupation and from enjoying a comfortable existence, but also on objective grounds, since, notwithstanding the utmost precautions, an old ureteral fistula may result in suppurative inflammation of the corresponding kidney and of the adjacent soft parts. (3) Nephrectomy performed under these last-mentioned conditions offers much less favourable prospects than in cases in which there is an absence of suppuration or of cicatricial adhesions. (4) There can be no doubt that, under equally favourable conditions, the transperitoneal method can be performed more rapidly and with greater ease than the extraperitoneal method of nephrectomy, and that the progress towards recovery is more speedy after the former operation. The transperitoneal method, however,

is not applicable to every case, and should be reserved for those instances in which the mischief is confined within the capsule of the kidney, the extraperitoneal method being indicated when the suppurative process has involved the perirenal structures.

MIDWIFERY AND DISEASES OF WOMEN.

(311) Hyperemesis Gravidarum a Hysterical Complication.

Professor Kaltenbach (*Zeitschrift f. Geburtsh. u. Gynäk.*, vol. xxi., pt. 1, 1891) holds that the clinical history and the "cures" of cases of uncontrollable vomiting of pregnancy indicate that the disease is essentially due to hysteria. Pregnancy involves physiological and psychological conditions favourable to the development of hysterical symptoms in a modified form. Hyperemesis is often cured by a process akin to suggestion, like ordinary hysteria. "Doing something," dilatation of the os, massage, etc., often succeeds if the practitioner gains the patient's confidence, and hosts of drugs have answered, apparently under the same conditions. On the other hand, all these vaunted medicines and operations have failed when employed by physicians who possibly did not possess as much tact as knowledge. Hyperemesis may suddenly cease if the patient be alarmed, as in a case under Professor Kaltenbach himself, where the patient was reduced to a skeleton; a day being fixed for the induction of labour, her friends frightened her by saying that she could not survive such an operation. The vomiting ceased. The same sudden arrest of hyperemesis was observed by Cazeaux in a young wife whose husband was seized with symptoms of strangulated hernia. In a third case, the vomiting ceased on the outbreak of an acute exanthematous fever. Professor Kaltenbach describes a bad case where the patient, aged 21, made an unhappy marriage, and was unkindly treated by her husband. Very severe vomiting set in during her first pregnancy, and she was sent into a hospital. It was suggested to her that she had lumps of unwholesome material in her stomach, and that their removal would cure her. Some milk was given to her, ceremoniously, and shortly after the stomach was washed out. Its contents bore no indications either of over-acidity or of any abnormal ferment. The patient was then informed that all was right, and that the vomiting would not return. It ceased accordingly, and she was safely delivered at term. In short, Professor Kaltenbach urges that hyperemesis gravidarum should be treated as a purely hysterical complaint. Prompt treatment is indeed necessary, for as in hysterical vomiting of non-pregnant women the patient may, if at first neglected, die of syncope or nervous exhaustion even when the vomiting has been stopped. But isolation from domestic cares and imprudent friends, with appropriate moral treatment, should be enforced before so extreme a step as artificial abortion is undertaken.

(312) Cæsarean Section successfully performed a Second Time on the Same Subject.

Dr. A. Crimail, of Pontoise (*Annales de Gynéc. et d'Obstét.*, May, 1891) successfully performed Cæsarean section on a non-rachitic dwarf in October, 1888 (measurements of pelvis are given in the account of this operation, *ibid.*, April, 1889). The patient made a good recovery. A small hernial protrusion developed in the lower part of the abdominal wound. She again became pregnant, and at first begged that abortion should be induced. Being dissuaded she then declared that, as she had already gone through Cæsarean section, she was ready to submit to that operation again (in preference to cranioclasm), so great was her anxiety to have a live child. Labour pains came on at term, February 19th, 1891, 7 A.M., the head presenting in the first position. Rigorous antiseptic precautions were taken. The old cicatrix was divided, but the incision thus made in the abdominal walls was extended upwards, so that the whole wound was over six inches long. The uterine cicatrix presented immediately behind the wound. At the first operation silkworm gut had been used. Three knots of this material remained; the rest of each thread had been completely absorbed. The intra-abdominal structures were protected by means of boiled carbolic gauze. The uterine cicatrix was divided. As the cicatrical tissue was very tough it could not be torn by the finger, and strong scissors were needed to divide it. There was no hæmorrhage. The left arm presented. Dr. Crimail pushed it back and seized the left foot, delivering a living female child. The cord was divided. The placenta was extracted complete with all its membranes. There was very little bleeding during this stage; an assistant pressed the parietes firmly together against the uterus, as that organ was being kept for the time outside the abdominal cavity. The elastic ligature was not needed. The uterine cavity was dried with pads of iodoform gauze. Five deep sutures of carbolised silk, with four or five superficial sutures of silkworm gut between each interval in the deep sutures, were passed through the uterine walls; the deep sutures were kept clear of the uterine cavity, the superficial included the peritoneum. Each Fallopian tube was tied in two places and divided between the ligatures. The edge of the uterine wound oozed for a time when the uterus was replaced into the abdominal cavity, but soon strong contractions set in. Nine deep (silk) and twenty-three superficial (silkworm gut) sutures were passed into the abdominal wound. The patient left the hospital twenty-five days after the operation. She was able to suckle the child.

(313) Cæsarean Section: What to avoid.

Dr. Howard Kelly (*Amer. Journ. Obstet.*, May, 1891) lays down the following rules, based on the collected experience of many authorities: (1) Do not use antiseptic solutions for instruments or hands after the operation has begun. Above all, do not use them in the abdominal cavity. Use pure water throughout, preferably distilled, which has been boiled half an hour. (2) Do not turn the uterus out of the abdomen before delivering the child, unless its contents are doubtfully septic. It does no good, adding an unnecessary step and calling for a larger abdominal incision. (3) Do not cut the placental tissue, thus bleeding the child, in placenta prævia Cæsareana. (4) Do not waste time picking off small shreds of decidua from the inner surface of the uterus. (5) Do not do a conservative Cæsarean operation when the uterus is already septic. If the uterus be infected do a supravaginal operation after Porro's method. (6) Do not use catgut of any kind as a uterine suture. It has proved dangerous and uncertain. (7) Never use a continuous suture in the uterus. (8) Do not attempt to drain the abdominal cavity; it cannot be done effectually. (9) Do not douche out the vagina as

a matter of routine after the operation. It must be carefully disinfected beforehand; afterwards an aseptic genital tract will need no active antiseptic *régime*. (10) Let all preparations be so full and carefully made beforehand that no time shall be lost, and each successive step shall follow its predecessor with the utmost rapidity consistent with accuracy, and the whole be completed with dispatch.

DISEASES OF CHILDREN.

(514) Craniectomy.

At the French Surgical Congress 28 cases of craniectomy were reported, 25 by M. Lannelongue, and 1 each by MM. Th. Anger, Heurtaux, and Manoury (*Rev. Mens. d. Mal. de l'Enfance*, May, 1891). One of M. Lannelongue's patients died in forty-eight hours, the other 27 cases recovered from the operation. M. Lannelongue reports that in a large number of his cases there was distinct improvement both in intellectual capacity and in the power of walking. In M. Anger's case (a girl, aged 8 years, imbecile, and with convulsive attacks from the age of 18 months) there was great improvement. In M. Manoury's case, (a microcephalic girl, aged 4 years, liable to convulsions from the age of 3 months, imbecile, unable to stand, and with athetosis of the upper limbs) there was improvement lasting two or three months, and then rapid retrogression. M. Heurtaux's patient, a girl, aged 5 months, died unbenefited. M. Lannelongue stated that he had performed two varieties of craniectomy, (1) linear craniectomy along the superior longitudinal sinus, posteriorly between the lateral sinus and the occipito-parietal suture, or transversely in the frontal bone dividing the longitudinal sinus; (2) *craniectomie à lambeaux*, in which the cranial bones were so cut as to leave bony flaps of various forms, the shapes being U-shaped, V-shaped, rectangular, horseshoe-shaped, or T-shaped. The amount of bone removed measured from $\frac{1}{4}$ to $\frac{1}{3}$ inch. The average duration of the operation was about forty minutes. A trephine was applied at one extremity, and thereafter bone was removed with pincers. The dura mater should not be touched unless pachymeningitis were present, in which case it should be scarified or incised; it was not necessary to resect the periosteum. The operation of craniectomy was to be recommended in microcephalus with premature ossification of sutures and closure of fontanelles, in obstetrical paralysis or obvious cranial depression from other causes, in meningeal hæmorrhages and hæmatoma, circumscribed pachymeningitis, hyperostosis due to congenital syphilis, and in hydrocephalus with thickening and premature closure of the cranium.

(515) Diphtherial and Diphtheroid Inflammations.

Professor W. H. Welch and Dr. A. C. Abbott (*Bull. of the Johns Hopkins Hospital*, II, 11) report the result of a bacteriological examination of 8 cases of primary diphtheria; cultivations of the Klebs-Löffler bacillus were easily obtained from all. They consider that "every postulate necessary to prove that the specific cause of primary diphtheria is the Klebs-Löffler bacillus has been fulfilled, and that this bacillus may be designated the bacillus diphtheriæ." The bacillus in bouillon cultures, or suspended in sterilised salt solution, was killed by an exposure to a temperature of 58° C. (136° F.) for ten minutes. Guinea-pigs inoculated with cultures died in from one to five days of systemic disease, but without generalisation of the bacillus, which was found only at the point of inoculation, though there in great numbers. Rabbits (which survived longer), five to twenty days, developed, as a rule, paralysis of the hind limbs, and in some cases tremor and irregular respiration. Rubbed on to the abraded tracheal mucous membrane in a kitten, cultivations of the bacillus produced a membranous tracheitis with surrounding œdema. In one patient, examined three weeks after the diphtherial membrane had disappeared, the bacillus was not found. In a few control cases (tonsillitis, pharyngitis, follicular tonsillitis, and one case of membranous tonsillitis in which a suspicion of diphtheria had been aroused) the bacillus was not found. The diagnostic value of the bacillus may therefore in some cases be considerable. Streptococci were not found associated with the characteristic bacillus in all the cases of diphtheria, but they are frequently present, and various complications of diphtheria were, in the opinion of the authors, probably due to secondary infection by these streptococci or other organisms.

Dr. Mitchell Prudden, who two years ago published the results of a bacteriological examination of the membrane from 24 cases, in none of which was the bacillus of Löffler found, now publishes (*N. Y. Med. Rec.*, April 18th, 1891) the result of a similar examination of 12 wholly uncomplicated cases; in 11 the bacillus was found. He points out that all the cases, with one exception, in his former series were drawn from two asylums in which measles and scarlatina were prevalent at the time. In 22 of the first series of cases the streptococcus pyogenes was present; in 11 of the second series streptococcus pyogenes, and in the same number the staphylococcus pyogenes aureus were present. In one case Löffler's bacillus was associated with the streptococcus, in one with the staphylococcus, and in nine with both. The case in which the bacillus was not found was one in which the membrane was extensive, and the child died of heart failure, but no source of infection could be traced.

Dr. P. Haushalter discusses (*Rev. Méd. de l'Est*, May 15th, 1891) the question whether the spontaneous "diphtheria" observed in poultry is etiologically identical with human diphtheria. He found that membranous affections, sometimes of a very benign character, were extremely common among domestic poultry bought in the market of Nancy. These membranes yielded cultivations of a bacillus which Dr. Haushalter considers to be, without doubt, specifically distinct from the bacillus of human diphtheria. The poultry bacillus grows freely at 18° C., its contour is uniform, it is found in the blood of affected animals, and it is less lethal when inoculated subcutaneously than the Klebs-Löffler bacillus. Dr. Haushalter, however, accepts the statement that poultry can be infected with human diphtheria. Such being the case, he recommends careful prophylactic measures in any infective disease of poultry characterised by membranous exudation, namely, isolation of the infected animals, killing of animals seriously ill and burning of their bodies, burning of straw, etc., soiled by the birds, and disinfection of the hands of the attendants,

PHARMACOLOGY AND THERAPEUTICS.

(516) Effects of Sodium Chloride Baths.

M. ROBIN (*Bull. de l'Académie de Médecine*, No. 20, May 25th) contributes a long paper on the use of brine baths, in which he attempts to systematise their use according to results obtained by chemical examination of the urine. According to M. Robin, these baths are indicated chiefly in three conditions: (1) All morbid conditions in which there is diminished nitrogenous excretion, that is, diminution of nitrogenous exchange in the tissues; (2) lessening of nitrogenous oxidation constitutes the second indication; (3) the third indication depends on a special action of the treatment on the waste in tissues rich in phosphorus, or in those rich both in phosphorus and nitrogen. These are the three broad indications, but experience has shown him that the baths act differently according to their degree of concentration. Thus, it is found that a quarter-strength bath is most useful in cases in which it is not desired to increase either nitrogenous exchange or oxidation, in patients with a tendency to get thin, and who excrete an excess of uric acid. It will have little effect on chronic osseous affections. Half-strength baths will be applicable to cases with diminished nitrogenous exchange. They will be useful in all chronic glandular affections, strumous disease, periostitis, and chronic arthritis. Full-strength baths have a powerful effect on organic oxidation, and will suit patients with osseous affections, rickets, certain neuroses, certain forms of anæmia, and those who are being poisoned with the products of their own imperfect oxidation. They favour assimilation while diminishing the nitrogenous output. To recapitulate, saline bathing is recommended as the treatment for the lymphatic diathesis, scrofula and its osteo-articular manifestations, rickets, chronic uterine inflammation, chronic rheumatism, some forms of anæmia, etc. Chemical observations also tend to show that it diminishes the production of uric acid, and that it is also a means of oxidising imperfectly burned and toxic residues. M. Robin goes further, and declares that the degree of concentration must be very carefully regulated to fulfil these various indications. Applying this to particular cases, he considers at some length the use of the treatment in anæmia. He divides anæmic patients into two classes, the first comprising those with diminished nitrogenous exchange and lessened oxidation, the second including those in whom nitrogenous exchange and oxidation are increased. The first class is amenable to treatment by iron, which increases tissue change, while the others are more benefited by the use of arsenic, or of the salt bath, which control these processes. The same considerations are applicable to other morbid conditions, such as obesity, gout, etc. The baths, with their power of raising the "co-efficient of oxidation," will benefit those who are obese from failure of disassimilation, but it will have no effect on the obesity caused by too rapid assimilation. As regards gout, the strong baths are found to be unsuitable to the confirmed disease, and are only applicable when the lesions have become passive and have ceased to increase. This is explained by the observation that the urine in acute gout presents the type of excessive nutrition, while that of the chronic affection corresponds to the type of retarded nutrition. In the latter case the baths will act by increasing the nutritive activity, stimulating oxidation, and favouring the elimination of uric acid. Lastly, the oxidising power of salt baths justifies their employment in certain auto-intoxications of intestinal origin, and in certain cases of neurasthenia and nervous troubles consecutive to acute febrile diseases. In short, in conditions in which there is impaired nutrition from imperfect assimilation the saline baths should be efficacious; on the other hand, if the morbid condition arises from too active absorption or oxidation the treatment will only have the effect of diminishing still further the resistance of the organism, and of playing into the hands of the disease.

(517) Therapeutic Action of Double Salicylate of Theobromine and Sodium (Diuretin).

AN account of this substance has already been given in the SUPPLEMENT (January 3rd, 1891). Geisler has made further observations with it in 8 cases; of these 1 was in good health, 4 were heart cases, 2 Bright's disease, and 1 cirrhotic liver (*Berlin. klin. Wochenschr.*, April 13th and 27th, 1891). The cases are very carefully detailed. The blood pressure was measured in the radial artery by means of von Basch's sphygmomanometer, and sphygmographic tracings were also taken, and are printed in the paper. The drug was given in 15-grain doses from one to six times in the twenty-four hours. It would take too much space to give a detailed abstract of each case, but the author was well satisfied with the effect of the treatment, and summarises his results as follows:—(1) Salicylate of theobromine and sodium raises the blood pressure; this occurred in all the cases, and is in opposition to the results of Gram and Koritschoner. (2) It is not only a diuretic, but also a cardiac tonic. (3) It acts especially well in cases of circulatory disturbances due to valvular lesions of the heart. (4) In lesions of the heart muscle its action is much weaker, especially its diuretic action. (5) In acute nephritis its diuretic action is much more marked than in chronic nephritis; there is increased diuresis and disappearance of the œdema. In both cases the excretion of albumen remains as before. (6) In the case of cirrhotic liver no diuretic action was observed. (7) In the healthy man diuresis was increased to some extent. Gram holds that theobromine alone is the diuretic constituent of the compound, but Geisler is of opinion that the salicylate of sodium is also active, as both it and salicylic acid have been shown (Huber, *Deut. Archiv f. klin. Med.*, xli, and Stiller, *Wiener med. Presse*, 1890) to have diuretic effects.

(518) Action of Chloroform and other Poisons on the Alkaline Reaction of the Body Fluids.

DR. J. PETRUSCHKY (*Deut. med. Wochenschr.*, May 14th, 1891) has made some interesting observations on this point. Von Behring had previously found that the chloroforming of white rats diminished the alkalinity of their blood to such an extent that the frequent administration of chloroform lessened their resistance to anthrax. Petruschky found in cats killed with chloroform that the fluids in the pericardium, in the peritoneal cavity and other places, and the blood, had a distinct acid reaction instead of an alkaline one. The same results were got with rabbits, guinea-pigs, and mice. During life and immediately after death the fluids of the warm body were still alkaline, but, as cooling set in, this changed, and their reaction became acid. The author cannot

assign any satisfactory explanation for this, but he contributes some further observations. If the still warm blood of an animal killed by chloroform be placed in a sterilised test tube it coagulates, but retains its alkaline reaction, although the blood left in the corpse rapidly becomes acid. The formation of acid, therefore, must take place in the tissues, and then be communicated to the fluids. That it does not take place only in the muscles seems proved by the circumstance that the pleural and peritoneal fluids also become acid. It is therefore probable that all the tissues take part in forming the acid. Besides, blood shaken up with chloroform outside the body does not take on an acid reaction. The acidifying of the body fluids must therefore be a last vital act of all the tissue cells. During life the acids which are formed in the body are being constantly neutralised, and hence the fluids in the chloroformed animal remains alkaline, but this does not occur after death. In men under the prolonged influence of chloroform the blood was always alkaline, and in the bodies of persons who had died from natural causes the reaction of the body fluids was always alkaline also. In a man poisoned by arsenic the various fluids were also found to be alkaline, and this was also the case in animals. Ether, cyanide of potassium, and oxalic acid all gave the same results as chloroform. In all cases the rigor mortis was very pronounced. Further observations are promised by the author.

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(319) Kava-Kava in Gonorrhœa and Cystitis.

Dr. David Cerna, Assistant in Physiology in the University of Pennsylvania, reports (*Philadelphia Medical and Surgical Reporter*, May 2nd, 1891) five cases of gonorrhœa and cystitis in which he used kava-kava with results which he considers sufficiently good to redeem the remedy from "the neglect in which it is at present held by the medical profession." The following is an abstract of the cases: I. Dental student, aged 19, had suffered four months from gonorrhœa, for which he had been treated with copaiba and cubebs internally, with injections of acetate of lead, sulphate of zinc, and nitrate of silver. Notwithstanding these measures, pain in passing water and discharge persisted. Under the internal use of kava-kava (mxv *ter die*), without any other kind of treatment, amelioration was noticed in three days, and in two weeks the patient was entirely well. II. Man, aged 24, suffering from third attack of specific urethritis of a few days' standing. There was a copious discharge and great pain in micturition; "no stricture could be detected, but there was undoubtedly a beginning inflammation of the bladder." He was immediately ordered kava-kava (mxx *ter die*), without any other remedy. Relief was experienced by the fourth day, and at the end of the third week he was entirely cured. There was no return of the malady for over two months after the suspension of the treatment. The two previous attacks had lasted two and three months respectively. III. Medical student, aged 22, had suffered for nearly two years from specific urethritis with cystitis, the result of a third attack of the malady. The usual remedies failed to give relief. He took kava-kava (mxxx-xl *ter die*), without any other treatment, and in two weeks great improvement was observed. The remedy was afterwards combined with sweet spirits of nitre, and though there was no stricture, a sound smeared with belladonna ointment was passed into the urethra twice a day. At present (eight months later) the cystitis has disappeared, and there is a notable reduction in the size of the prostate. "The patient continues to take the remedy with fair chances of complete recovery." Dr. Cerna, however, states that he had been somewhat careless in his diet and habits, and had not taken the drug with regularity. IV. A coloured boy, aged 8, with painful and frequent micturition for over six months. No stone could be found, but the microscope showed triple phosphates and pus corpuscles. The case was diagnosed "by exclusion" as one of chronic cystitis, and benzoic acid, benzoate of sodium, and eucalyptol were tried without result. Kava-kava in 10-drop doses twice a day was given, "with wonderful results in the course of two weeks." A cure was effected in one month. V. A girl, aged 22, with vaginitis following gonorrhœa, had taken different medicines and used various injections without relief. Kava-kava in 20-drop doses three times a day produced marked improvement in three weeks, and in three months she was perfectly well. Dr. Cerna concludes that kava-kava is of great service in inflammations of the mucous membrane; its action is chiefly local, but it is also a general stimulant and a tonic. In most of the cases above cited it had also marked diuretic properties. No injurious after-effects were observed. The preparation used was the fluid extract, which may be given by itself or in combination with other drugs, such as sweet spirits of nitre, glycerine, iodide of potassium, etc. The taste of kava-kava is not disagreeable. Dr. Cerna gives a sketch of the literature of the subject, and concludes with a summary of its effects in 41 authenticated cases reported by different physicians, full details of which are given in tabular form. Of these it appears that 33 were cured and 8 relieved. The former include 9 cases of acute cystitis, 2 of chronic cystitis, 6 of gonorrhœa, 1 of prostatorrhœa, 1 of retention of urine, 4 of gleet, 1 of urethritis with cystitis, 6 of incontinence of urine, 2 of "dropsy," and 1 of vaginitis. The latter include 4 cases of gonorrhœa, 1 of cystitis, 2 of "dropsy," and 1 of gleet.

PATHOLOGY.

(320) Production of Osteomyelitis by Cultures of Staphylococci.

MM. Lannelongue and Achard (*Annales de l'Institut Pasteur*, April, 1891) give an account of their researches on osteomyelitis induced by means of inoculation with cultures of staphylococcus pyogenes aureus, staphylococcus pyogenes albus, and streptococcus pyogenes. The experiments were all made on young rabbits. After intravenous injection of the first of these microbes, lesions of the bones and viscera were found to occur; in the bones these took the form of either subperiosteal or intramedullary abscesses or suppurations in joints, certain joints being especially liable to attack. The microbes were distributed in the affected bones as they are in the acute osteomyelitis of children. The authors note that the parts in which there was most migration of leucocytes and cell proliferation were not those in which they found most bacteria. In the viscera, the most constant lesion was the occurrence of inflammatory foci or abscesses in the kidneys; in fact, the renal lesions were not only

earlier in their development than the osseous ones, but they were found to be more constant. Pleurisy or pericarditis or inflammations of synovial sheaths and of intramuscular connective tissue occurred in some cases. Staphylococcus pyogenes albus produced exactly similar lesions of the bones and viscera, but the foci presented a white, in lieu of a greenish-yellow, colour. The virulence of this microbe was found to vary a good deal, and a larger dose was generally required to induce osteomyelitis. In speaking of the osteomyelitis caused by streptococcus pyogenes, they relate two or three instances in which they have found this microbe unassociated with staphylococcus in cases of osteomyelitis in infants, and they give a clinical picture of the signs and symptoms presented in these cases. The onset was very acute; the temperature was high at first, but fell in two or three days, becoming remittent. Pain was less than in cases of osteomyelitis due to staphylococcus; the skin was reddened at an early stage; suppuration was prompter and more abundant, and erysipelas or widespread œdema was especially prone to occur. The veins were not prominent as in cases due to staphylococci; but, on the other hand, lymphangitis, adenitis, and metastases to other joints were common. The mothers of all these infants had suffered from puerperal febrile disorders. Experiments upon young rabbits with micro-organisms obtained from the pus in cases of this kind, or from cases of adenitis in children, showed that the osteomyelitis so induced bears a very remarkable resemblance to the disease as it occurs in infants, and that it is unlike the osteomyelitis produced by the staphylococci, in that visceral and especially renal lesions are very rare and of less intensity, while erysipelas occurs in about one-half of the cases. The osseous lesions are of the same character as those induced by staphylococci.

BACTERIOLOGY.

(321) Micro-organisms of Yellow Fever.

Professor Domingo Freire, of Rio de Janeiro (*Deutsch. med. Woch.*, No. 17, 1891), maintains that there can be little doubt that bacteria play a most important part in the causation of certain specific diseases, but that along with bacteria there are accessory factors that must always be taken into account. In yellow fever, which is undoubtedly of bacterial origin, we have an admirable example of the necessity that there is for the presence of the various factors for the production of the disease. It is a disease which is found only in hot climates, and there only in patients who, from altered conditions of the gastric juice and blood or tissue juices, offer suitable media in which the specific organisms can flourish. The organism found in yellow fever is rounded, single, or in little masses or chains; it is usually stained with fuchsine, methyl violet, and cherry red; it grows readily in peptonised agar, beef-jelly, and broth—on the agar especially, prominent growth appearing on the surface. The colonies, at first white, become yellow, then grey, and even black; the organism separates out two distinct pigments, one of them yellow, soluble, and easily diffusible into the tissues, giving rise to the characteristic colour to which the disease owes its name; the other black, insoluble, and very frequently met with in vomited matter (black vomit). Toxic ptomaines may be separated from cultures, and these, when injected into frogs and rabbits, produce typical bulbar symptoms, the poison acting especially on the sympathetic and pneumogastric nerves. Injections of blood from a yellow fever patient, or of pure cultures of the organism, produce all the characteristic symptoms of the disease in guinea-pigs. Professor Freire, as is well known, finds that a cultivation through several generations so interferes with the virulence of the organism that it serves as a protective vaccine, setting up all the symptoms of a modified yellow fever, to which the patient does not usually succumb, and which protects him from further attacks of this malignant disease. From 1883 to 1890 there have occurred five epidemics—1883, 1884, 1885, 1888, 1889—during which no fewer than 10,885 people have been inoculated, with a very small death-rate. As the result of Professor Freire's work, a special institute supported by Government was opened in December, 1890; this is to be devoted to the preparation of yellow fever vaccine. Patients have now, in consequence of the success of the treatment, lost all fear of being vaccinated.

(322) Micro-organisms in Diseases of Pigs.

Dr. Georg Caneva (*Centralbl. f. Bakt. u. Parasitenk.*, Band ix, No. 17, 1891) has made an attempt to classify the various organisms that have been described as giving rise to diseases of pigs in America, in Sweden, and in this country. He finds that they may be divided into three groups. The first of these he looks upon as the hæmorrhagic septicæmia group described by Hueppe, which includes rabbit septicæmia, Schutz's swine fever, Hueppe's "Wildseuche," Kitt's "Rinderseuche," and Oreste-Armanni's "Büffelseuche"; these organisms are non-motile; they do not grow very luxuriantly on gelatine, and they are not at all like the typhoid cultures (as are some of the following); there is no growth on potatoes, and in milk they give rise to no special or characteristic features. When examined in the tissues they are found scattered in the blood vessels and connective tissue spaces. In the next group, which contains Rietsch's Marseilles "Schweinseuche," Billing's swine plague, Billing's American "Rinderseuche," and Eberth's "Frettchenseuche," the organisms exhibit a somewhat lively motion, the growths on gelatine are very like those of typhoid bacillus, there is a luxuriant growth on potatoes, and milk is curdled, acid formation taking place. These organisms are found as small capillary emboli, always in masses, and never scattered singly through the tissues. In the third group are described two species—Salmon's bacillus of hog cholera, and Selander's bacillus of swinepest—both of which are exceedingly motile. They exhibit a luxuriant and rapid growth on gelatine, but do not resemble the typhoid growth. On potatoes the former grows luxuriantly, the latter grows somewhat like the typhoid bacillus. In milk they bring about direct solution (peptonisation) of the casein without any previous curdling. These organisms (like those in the previous group) occur in the blood vessels as small capillary emboli, and never singly in the tissue spaces.

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